

REMARKS

Reconsideration and allowance are respectfully requested.

Claims 1-31 are pending. No new matter has been added because the amendments are supported by the original disclosure. The limitations "interior configuration" and "interior geometry" are identical with respect to describing the interior space of a reaction chamber (see page 24, lines 17-18, of the specification) but the latter is used in the pending claims to distinguish from the limitation "configured such that" which refers to the general arrangement of structural elements found in the microwave unit or tissue processor system.

Claim Objections

Claims 3, 8-11, 19, 24-25 and 28 were rejected to under Rule 75(c) as allegedly "being of improper dependent form." Applicants traverse.

The temperature of a solution and the pressure within the reaction chamber are limitations of the claims; they are not intended uses as alleged in the Office Action. But to advance prosecution in this application, claims 3, 19 and 28 have been amended so that the microwave unit or the tissue processor system is configured to provide such temperature or pressure. Similarly, it is believed that claims reciting characteristics of how tissue is processed are proper dependent claims but claims 9-11 and 24-25 have been amended to recite that the microwave unit or the tissue processor system is configured to provide such results.

Applicants submit that claim 8 does further limit the chemical compositions of the microwave unit. Note that claim 1 recites that there is at least a first chemical composition and claim 4 further defines that it is comprised of fixative and dehydrating agent. Claim 8 additionally requires a series of at least two different chemical compositions used with the microwave unit, they are comprised of a ketone and an alcohol, and the volume ratio of alcohol to ketone changes between at least two non-aqueous solutions of the series. Therefore, claim 8 is in proper dependent form.

Withdrawal of the claim objections is requested.

35 U.S.C. 112 – Definiteness

Claim 13 was rejected under Section 112, second paragraph, as being allegedly "indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." Applicants traverse.

A "whispering gallery" is recited as a limitation of the claim and is described on page 6, lines 19-20, of the specification. Such an interior geometry is known in the art (see U.S. Patent 5,532,462 submitted in the Information Disclosure Statement of December 7, 2001) but has not been taught or suggested to be applicable in tissue processing.

Applicants request withdrawal of the Section 112, second paragraph, rejection because the pending claims are clear and definite.

35 U.S.C. 103 – Nonobviousness

To establish a case of prima facie obviousness, all of the claim limitations must be taught or suggested by the prior art. See M.P.E.P. § 2143.03. Obviousness can only be established by combining or modifying the prior art teachings to produce the claimed invention if there is some teaching, suggestion, or motivation to do so found in either the references themselves or in the knowledge generally available to a person of ordinary skill in the art. See, e.g., *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Jones*, 21 USPQ2d 1941, 1943-44 (Fed. Cir. 1992).

Claims 1, 3-12 and 14 were rejected under Section 103(a) as allegedly unpatentable over Essenfeld et al. (WO 99/09390) in view of Carr (U.S. Patent 5,782,897). Applicants traverse.

Carr teaches a generally rectangular waveguide cavity resonator. He appears to have recognized the problem of non-uniform heating of samples, but the solution which is taught by Carr was to position a body of non-magnetic dielectric material inside the waveguide structure. This is not a general solution applicable to different types of tissue specimens because "the dielectric constant of the dielectric body is chosen to closely match composite dielectric constant of the holder and its contents" (emphasis added).

In contrast, Applicants' invention uses a reaction chamber with an interior geometry chosen to provide a substantially uniform distribution of temperature within the reaction chamber. The "interior geometry" of the reaction chamber (page 24, line 17, of the specification) can be designed depending on the wavelength of the microwave radiation (see page 24, lines 20-26, of the specification) and spacing between the solution in the reaction chamber and its wall (see page 24, line 27, to page 25, line 5, of the specification). This is a general solution to the problem of non-uniform heating because it is not dependent on the dielectric constant of the tissue specimen. The "substantially uniform distribution of temperature" within the reaction chamber does not depend on its contents (cf. page 5, lines 19-21, of the specification) but is determined by its interior geometry.

Carr neither teaches nor suggests a solution to the problem of non-uniform heating which is independent of the choice of tissue specimens and their different dielectric constants. Instead, a slab 22 of dielectric material is used to alter the energy distribution within the reaction chamber and to concentrate the microwaves toward the tissue specimen in holder 18 (col. 5, lines 24-37, of the '897 patent). More importantly, the dielectric constant of the slab 22 is chosen to closely match the dielectric properties of the holder, tissue specimen, and fixative solution. Therefore, it is not the interior geometry of Carr's reaction chamber which provides a substantially uniform distribution of temperature therewithin. Instead, Carr teaches that the dielectric properties of part of the reaction chamber (i.e., the slab) and its contents (i.e., holder, tissue specimen, and fixative solution) must be matched.

In summary, the cited references do not disclose "an interior geometry which provides a substantially uniform distribution of temperature therewithin" and the Section 103 rejection should be withdrawn because all of the claim limitations are not disclosed.

Claims 15-17 and 19-25 were rejected under Section 103(a) as allegedly unpatentable over Essenfeld et al. and Carr as applied to claim 1, 3-12 and 14 above, and further in view of Bernstein et al. (U.S. Patent 5,875,286). Applicants traverse.

The failure of the previously cited references to teach or suggest "an interior geometry which provides a substantially uniform distribution of temperature therewithin"

is not remedied by the disclosure of Bernstein et al. The '286 patent was cited for its disclosure of a "robot arm" which is used as a conveyance in an automated system for tissue processing. No "interior geometry" in accordance with Applicants' invention is taught or suggested by Bernstein et al. Therefore, this rejection should be withdrawn.

Claims 26-28 were rejected under Section 103(a) as allegedly unpatentable over Essenfeld et al. and Carr as applied to claim 1, 3-12 and 14 above, and further in view of Grillo et al. (U.S. Patent 6,011,247). Applicants traverse.

The cited references fail to teach or suggest "an interior geometry to provide a substantially uniform distribution of microwave radiation transmitted therein" as required by claim 26. The '247 patent was cited for its disclosure of a "feed line" which is used for fluid communication. No "interior geometry" in accordance with Applicants' invention is taught or suggested by the cited references. Therefore, this rejection should also be withdrawn.

Claim 18 was rejected under Section 103(a) as allegedly unpatentable over Essenfeld et al., Carr, and Bernstein et al. as applied to claim 1, 3-12, 14-17 and 19-25 above, and further in view of Grillo et al. Applicants traverse.

The '247 patent was cited for its disclosure of a "liquid cooling channel" but this is not thermal insulation surrounding the reaction chamber. Instead, the thermal insulation of Grillo et al. is restricted to the neck of the reaction chamber. The insulation of this channel does not satisfy the limitation that the reaction chamber be surrounded.

As noted above, the previously cited references failed to teach or suggest an "interior geometry " in accordance with Applicants' invention and as required by claims 1 and 26. Therefore, claims depending from claims 1 and 26 are also patentable.

Withdrawal of the Section 103 rejections is requested because the invention as claimed would not have been obvious to a person of ordinary skill in the art at the time it was made.

Conclusion

New claims 29-31 recite that a reaction chamber is comprised of a whispering gallery mode as part of its interior geometry. The cited references do not teach or suggest this limitation.

Having fully responded to all of the pending objections and rejections contained in the Office Action (Paper No. 10), Applicants submit that the claims are in condition for allowance and earnestly solicit an early Notice to that effect. The Examiner is invited to contact the undersigned if any further information is required.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

Gary R. Tanigawa
Reg. No. 43,180

1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100